EXHIBIT E

UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
EASTERN DIVISION

****

IN RE: NATIONAL PRESCRIPTION OPIATE LITIGATION — MDL No. 2804

Case No. 17-MD-2804

This document relates to:
The County of Cuyahoga, et al. v. Purdue Pharma L.P., et al.
Case No. 17-OP-45004
(N.D. Ohio)

Hon. Dan A. Polster

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HIGHLY CONFIDENTIAL - SUBJECT TO FURTHER CONFIDENTIALITY REVIEW

Videotaped Deposition of JEFFREY B. LIEBMAN, Ph.D. held at the offices of Ropes & Gray LLP, 800 Boylston Street, Boston, Massachusetts, commencing at 9:03, on the 3rd of May, 2019, before Maureen O'Connor Pollard, Registered Diplomate Reporter, Realtime Systems Administrator, Certified Shorthand Reporter.

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Q. Are you an expert in the -- or let me ask this first.

Have you heard of the suspicious order monitoring program and requirements that are under the Controlled Substances Act, the federal --

A. I'm broadly aware of it.

Q. But you're not an expert in those requirements?

A. No.

Q. You're not an expert in FDA regulatory issues?

A. It's not a specialty. I've worked on them when I've been in the government.

Q. So you're familiar with FDA issues, but you wouldn't consider yourself to be an expert in the FDA requirements, for example?

A. That's correct.

Q. Prior to this case, you've never studied programs or policies that might best reduce the impact of opioid abuse, true?

A. No, that's not true.

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Q. Okay. In what context have you studied programs or policies that might best reduce the impact of opioid abuse?

A. I helped teach a course at the Harvard Kennedy school that was addressing these issues.

Q. And which course was that?

A. So our master's in public policy students in their first year take courses in economics and statistics and management and politics, and then at the end of their first year we stop the whole core curriculum for two weeks and we do a simulation where they are given a real world policy problem to address.

And last year and the year before -- I can't remember if it was the three years before, but at least last year and the year before the simulation we gave them was to come up with a solution. One of the years was to -- I think the simulation was to advise the governor of Kentucky -- I forget what the other framing was -- around what that state's solution to the opioid

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crisis should be.

Q. Was this -- and I'm sorry, this was a part of the course? I'm just trying to figure out how to describe what it is you're --

A. It's -- why don't we call it -- we will call it the spring exercise.

Q. The exercise, okay. The spring exercise. The spring exercise, was this before or after you were retained as an expert in this case?

A. Before.

Q. And this was a two-week exercise, is that true?

A. The intense part of it. There's obviously planning and curriculum design and arranging for all the experts to come visit campus as part of this. But the sort of intense part is two weeks for the students.

Q. Okay. And this is an exercise to help students learn how to do these sorts of analyses?

A. How to pull all the parts of

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the curriculum together and perform in a professional setting with a realistic policy scenario.

Q. Okay. And were the results of this exercise presented to -- for example, you said one of them was based on assuming you were the advising the governor of Kentucky. Were the results presented to the governor of Kentucky?

A. I actually don't remember how we did it that year. What we generally do is on the very last day we bring in outside officials to receive the briefings, and then sometimes we take the winning team of all the teams and get them in front of the real person. I don't remember if we ended up doing -- I wasn't -- that part of logistics wasn't my responsibility.

Q. And as part of this exercise, who is -- who were the people doing the work on it, the students that are --

A. The students.

Q. So this isn't something that you are doing as an analyst to review,

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correct, to review the policies that best might address the impact of opioid use, correct?
A. I wasn't generating a solution. I was thinking about what materials would be relevant for the students to read and which outside experts did we want to hear from as part of that period.
Q. Okay. Other than the spring exercise that we've been talking about, have you studied any programs or policies that might best reduce the impact of opioid abuse, other than in the context of this litigation?
A. In some of our Government Performance Lab work we have been involved with jurisdictions that were thinking about addiction issues.
Q. Any that were specific to opioid addiction?
A. So all of them were broader, included other addictions, but opioid addictions were part of -- were at the forefront of several of them.
Q. And which jurisdictions are you

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thinking of?
A. I'm thinking of Florida, Connecticut, Louisville.
If you don't mind, I'll look at my report and see if I forgot one. I think those are the three that --
Q. And you're looking at now Exhibit 4?
A. Exhibit 4. I would say Bernalillo County, Albuquerque belongs in that category, too.
Q. Have you ever done any, outside the context of this litigation, calculations about how much it might cost to provide services to reduce the impact of opioid abuse?
A. Specifically opioid abuse?
Q. Yes.
A. No.
Q. And again specific to opioid abuse, have you ever done any calculations as to where money might best be spent to reduce the impact of opioid abuse, outside the context of this litigation?

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A. Outside of the specific GPL projects I mentioned, no.
Q. And those GPL projects didn't address just opioid abuse, correct?
A. Right, they included other addictions.
Q. And as part of those GPL projects, were opioid issues culled out as a separate category? For example, just where I'm going, right, you know, were you looking at the ways in which governments might address abuse, but were there, like, separate spreadsheets or line items with respect to opioids?
MR. KO: Object to the form.
A. Can you simplify that question for me?
BY MR. MORRIS:
Q. I'll try. I'll grant you that was not a very good question. I'll come back to that concept.
A. Okay.
Q. Did you bring anything with you today to prepare for your deposition?

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A. No.
Q. What did you do to prepare for your deposition today?
A. I reviewed my report. I reviewed some of the sources that I cite in the report. I met with counsel.
Q. Okay. Let's start with the review of the report.
When you say the review of the report, which report did you review?
A. Primarily the supplemental report.
(Whereupon, Liebman Exhibit Number 6 was marked for identification.)
MR. MR. MORRIS:
Q. Okay. And is that -- if you take a look at what has been marked as Exhibit 6 --
A. Yes.
Q. -- that's one that's marked -- is dated April 3, 2019?
A. Correct.
Q. That's what you're referring to

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Q. And do those two things describe the opinions you were asked to render in this case?
A. Yes.
MR. KO: Object to the form.
BY MR. MORRIS:
Q. And are those two things -- do those describe the opinions that you intend to offer in this case?
A. Yes.
Q. Any other opinions that you intend to offer in this case?
MS. RITTER: Objection to the form. Asked and answered.
A. I think the report stands for itself. I'm trying to design a program that would abate the crisis and figure out how much that would cost.
BY MR. MORRIS:
Q. Understood.
And so in terms of what you were asked to do in this case, these two categories describe them?
A. Yes.

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Q. And there's nothing else I'm missing, in other words, that there's something -- some other set of opinions that you intend to provide in this case?
MS. RITTER: Objection to the form. Foundation.
A. My full work on this case involves constructing an abatement plan and figuring out the cost of it.
BY MR. MORRIS:
Q. Am I correct you're not offering an opinion regarding the cause of what you refer to as the crisis?
A. That's correct.
Q. And you're not offering an opinion in this case regarding the conduct of any particular defendant?
A. That's correct.
Q. Or the conduct of any particular group of defendants?
A. That's correct.
Q. And so no opinion regarding the role or responsibility of any defendant in injuring any person?

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A. I'm not providing any opinion on that.
Q. And you're not offering any opinion regarding the role or responsibility of any defendant in causing what you refer to as the opioid crisis?
A. I missed the difference between that question and the previous one.
Q. There may not have been.
A. Okay. Ask it again.
Q. You're not rendering an opinion regarding the role or responsibility of any defendant in causing what you refer to as the opioid crisis?
A. Correct.
Q. Now, this one is slightly different. No opinion regarding the role or responsibility of any defendant in causing a public nuisance?
A. That's correct.
Q. And you're not offering any opinion that assigns any percentage of fault to any defendant, is that correct?
A. That's correct.

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Q. And you have no opinion regarding the specific -- any specific defendant's products?
A. Well, I suppose some of the products that are -- for example, the medication-assisted treatment might be produced by one of the defendants, although I'm not sure about that.
Q. Fair enough.
You're not rendering an opinion regarding the efficacy, for example, of any defendant's prescription opioid medication?
A. That's correct.
Q. And you're not rendering an opinion regarding the marketing or distribution activities of any defendant, correct?
A. I mean, but there are places where the abatement needed responds to the need, and so in some way some of these things may be linked together.
Q. You haven't studied the marketing practices, for example, of any particular defendant?

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Q. And when did you notify counsel that you had changes?
A. Sometime in the last couple days.
Q. If you can go back to Exhibit 6, which is your April 3rd report. And turning -- going back to Paragraph 2 that we were talking about before which has the description of the two opinions, in the end of the first opinion that you were asked to provide it refers to "efforts to ameliorate and abate the crisis."
Do you see that?
A. Mm-hmm.
Q. What do you mean by "the crisis"?
A. The conditions such that people in the two communities are suffering, dying. The communities are having resources stretched, all of the impacts of the opioid epidemic.
Q. Okay. And that was my next -- one of my next questions. You also in the paragraph above refer to a public health

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emergency.
Do you see that?
A. Yeah.
Q. Is that the same thing as the crisis?
A. I would say the people I've interacted with in the bellwether communities seem to use crisis, emergency, epidemic pretty interchangeably, and I think there has been a, if I recall right, a technical emergency declared by the State of Ohio, so there is -- I think there's maybe a little bit more term of art to that one.
But the point here is that there is a big problem that needs to be addressed, and my report is about how to abate that problem.
Q. Okay. And so in your report sometimes you refer to crisis, sometimes you refer to epidemic. Is there a difference in the way you're using those terms?
A. No. I'm treating those as synonyms.
Q. And let me go back to that.

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An epidemic or crisis of what exactly?
A. That there are lots of harms happening in these communities because of the effects of people being addicted to opioids, and people are having lives ruined. People are dying. The communities are having difficulty delivering standard public services because so much is being allocated to deal with this crisis.
Q. Let me talk about a couple more terms that you use in the report.
You obviously refer to opioids. What do you use that term to mean in your report?
A. It encompasses heroin, synthetics like fentanyl, prescriptions, OxyContin, the whole range of the related compounds.
Q. So not just prescription medication?
A. No. Opioids means the full range in the way I'm using it.
Q. And so there's also -- I see

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you reference sometimes to illicit or illegal opioids. What does that refer to?
A. That would refer to things like heroin that are not legal, not for legal use.
Q. Are you familiar with different types of illicit opioids?
A. I mean, there's illicit ones that are always illicit. There are ones that can be illicit only if used in a way that they were not intended to be used. So there's a range --
Q. You're getting -- yeah, so you're getting to one of the questions I have.
So when you're use the term illicit opioid, for example, are you including in that prescription medication that is in the hands of somebody who shouldn't have it?
A. So just to be clear, there's nothing in my plan that is distinguishing between illicit and not illicit. My assignment was to come up with an abatement plan to adjust the whole opioid crisis, and

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not to distinguish.
So, you know, I think the only place that I remember that the language comes up is in a couple of the footnotes that -- pointing out that I'm dealing with the whole crisis and not distinguishing.
Q. Okay. And we'll get there when we're going through some of the specifics, but some of the costs that you are examining differ, depending on whether it's a prescription opioid medication versus an illicit opioid?
MS. RITTER: Objection to the form.
A. So my plan attempts to abate the harm, the harms that come from people misusing prescription opioids and from people who are misusing illicit opioids.
BY MR. MORRIS:
Q. Okay. We talked about this term before, opioid use disorder, or OUD. What do you use that term to mean?
A. I use that to encompass the disorder associated with the full range again

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of opioids.
Q. There's also, though, heroin use disorder, or HUD, which sometimes is referred to. How do you use that term?
A. That would be the subset. So I use opioid use disorder to be the overall, and heroin use disorder is a subset of that.
Q. Going back to Paragraph 2 in Exhibit 6, and we were talking about the phrase efforts to ameliorate or -- sorry, "to ameliorate and abate the crisis," then we started talking about crisis.
What does ameliorate mean?
A. To reduce the harms.
Q. And does that mean to lessen the harms in any way? Is there a metric that you're using for that?
MR. KO: Object to the form.
A. The plan I put together is meant to make a deep and rapid -- to have a deep and rapid effect in reducing harms.
BY MR. MORRIS:
Q. It also says "and abate." How are you using the term abate?

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A. Similarly to reduce the harms associated with this crisis.
Q. Okay. For purposes of your report, is there any difference between ameliorate and abate?
A. I think of the whole plan as an abatement plan that is trying to move as fast as we can to stop people from dying and stop the other harms associated with the opioid crisis.
Q. Is there a specific goal that would define what has abated the crisis?
A. I don't have a specific goal. I'm trying to make as much progress as we can make as fast as we can.
Q. And not to make light of it, I'm just trying to figure out what the bounds are. So if the plan were to probably impact ten people, that would in your terminology abate the public nuisance?
MS. RITTER: Objection to the form.
A. I'm really not trying to -- I don't have any -- I'm trying to put forth a

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plan that will do much more than that, and I don't have a -- the parsing of these words isn't something that I have thought hard about.
BY MR. MORRIS:
Q. I understand. Like I said, I'm not trying to be pejorative or make light of this at all. I'm just trying to figure out whether there's some trigger at which something becomes, ah, we've reached, quote, abatement that you've measured as part of your activity, your opinions.
MS. RITTER: Objection to the form. I'm not even sure there was a question.
A. I've forgotten the question. If you wouldn't mind answering -- asking it again.
BY MR. MORRIS:
Q. Sure. I'll come back to it. When we get to some specifics --
A. Okay.
Q. -- I'll turn back to it.
If you could turn now to

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Paragraph 14. We were looking at Paragraph 2 before which was raised in terms of the opinions you were asked to provide, and 14 refers to things that you have concluded, and then identifies an A and a B, in the first sentence at least.

Do you see that?

A. Mm-hmm.

Q. Is there -- let me do it this way. Can you read the first sentence?

A. Of Paragraph 14?

Q. Of Paragraph 14.

A. "I conclude that there is a framework within the area of applied economics by which an economist can reasonably evaluate the level of abatement resources needed for the next 15 years in the communities of Cuyahoga County and Summit County, Ohio, to abate the opioid crisis and the cost of those resources."

Q. Okay. You use the term "framework" here in discussing the conclusions that you've reached. What does framework mean?

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A. I'm saying that there is a methodology that one can use to do what I did in this report.

Q. And as an economist, are you offering an opinion about what specific programs should be implementing to abate the crisis?

A. I am doing what I always do when I am asked by a committee to help them make progress on a social problem, which is I consult with national -- with the national -- I read literature that's been written about the problem, often nationally, I consult with national experts. I then learn enough about the local situation to craft a solution that matches the local conditions.

So that's a framework that I have applied over and over again both when I have served in government and in my work at the Government Performance Lab.

Q. Okay. And if you look in Figure 1, there's a listing of the 19 specific elements of the abatement plan. Who came up with those 19 elements?

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A. I did.

Q. And you came up with those 19 elements to -- in your opinion would be the things that would abate the crisis?

A. Exactly.

Q. And you came up with these 19 elements of the plan even though you're not an expert in the treatment of people in communities with opioid use disorder?

MR. KO: Object to the form.

A. I did exactly what I do every time I'm asked to solve a policy problem; I consult with experts, I study the literature, I talk to people in the community, and then I put together the policy proposal that I believe can best help that community.

BY MR. MORRIS:

Q. This is the first time you've done such a thing for the opioid crisis, as you've termed it, correct?

MR. KO: Object to the form.

A. This is the first time that I have assembled an abatement plan for a community on the opioid crisis, that is

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correct.

BY MR. MORRIS:

Q. Are you relying on other people to say what should be part of the 19 elements?

A. So I am relying on the sources I cite in my report. So, for example, the CDC has recommendations, the Surgeon General has recommendations. I'm relying on advice I got from a variety of experts, including Dr. Lembke, Dr. Alexander and other, and I'm relying on what I learned from talking to local medical experts, local people working on these policy issues in the community.

Q. Okay. Let me ask it this way.

When did you start developing your abatement plan?

A. About a year ago.

Q. And was that in the summer of 2018?

A. Yes.

Q. And you then submitted the first report in March of 2019?

A. Yes.

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Q. So that's approximately nine months?
A. Mm-hmm.
Q. You've got to say yes or no.
A. Yes, approximately.
Q. Did you have a full-time job during that period that wasn't working on this opinion?
A. Yes.
Q. I may have asked you this before. Do you know how many hours the individuals at Compass Lexecon spent working on --
A. I do not.
Q. -- your opinion?
A. I do not.
Q. Who did the drafting of your opinion?
A. The writing?
Q. Yes.
A. I wrote nearly all of the first draft. There were a few paragraphs where I asked someone under my direction to draft them, and then I reviewed them and edited

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them.
Q. And who did you ask under your direction to make edits, or do additional drafting?
A. The three people at Compass Lexecon that I mention before.
Q. And what direction did you give them?
MR. KO: I'd advise the witness not to disclose -- to the extent these communications have been with or were involving counsel, I'd instruct the witness not to answer.
A. So an example would be I would say to them that I would like them to find out if there's any literature, further literature on the topic that I found a couple papers on, and find that literature for me in case I wanted to cite additional sources.
BY MR. MORRIS:
Q. Anything else you can think of for direction you gave them?
MR. KO: Same instruction.
A. Not specifically.

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BY MR. MORRIS:
Q. How long did you spend doing interviews of people?
A. Can we turn to the exhibit that has the interviews on it?
Q. Sure.
A. That would help me give you an answer to that question.
Q. Sure. We're still on Exhibit 6?
A. Yes. In Exhibit 6 and we're going to go to Appendix -- one of the appendices, Appendix C, please. So this is the list of interviews we did. I guess we could try to count them up to give you an answer to your question of how long.
Q. Let me ask this. How many -- were all these interviews done in person?
A. No.
Q. How many interviews did you conduct that weren't in person?
A. So you can see on the list the ones that say "call" were done on the phone, and the ones that say "meeting" were done in

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person.
Q. And when you met with people, aside from the interviewees, were there other people present?
A. Yes.
Q. And who would that be?
A. It varied by meeting. Typically there would be counsel there.
Q. How did you determine what documents to review in creating your abatement plan?
MR. KO: Same instruction as before. To the extent that these conversations involved or were with counsel, I'd instruct the witness not to answer.
A. I did what I always do when I am studying a topic. I do literature searches, I direct people working for me to do additional literature searches, I ask experts if there are other sources that would be relevant, and then I go find those sources. I -- you know, if there's anything in one paper that cites another that looks

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relevant, I'll go find that. I'll ask the experts, you know, if it's a particular question I'll say, I've seen these three papers, is there anything important that I'm missing? Other people involved, like counsel, will sometimes send me things that they run into that they thought might be relevant to what I'm working on.

BY MR. MORRIS:

Q. And you said you spent approximately 300 hours in total in working on creating your report for March, 2019?

MR. KO: Asked and answered.

A. That's correct.

BY MR. MORRIS:

Q. How much of that time was spent reviewing literature?

A. I have not pressed that -- separated out the different activities like that in my head.

Q. I saw reference to depositions that you've reviewed.

A. Mm-hmm.

Q. How did you determine which

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depositions to review?

A. Counsel would suggest to me ones that were relevant to the things I was working with, and sometimes would share the whole deposition with me and sometimes a portion.

Q. Let's go back to Figure 1 of your April report on Page 7, which is Exhibit 6.

You divided the abatement plan, your abatement plan into four main categories, correct?

A. That's right.

Q. We'll go into details about some of those later, but did you consider any other categories to include?

A. They're categories that -- I guess the answer is yes.

Q. And which categories did you consider including but not include?

A. Well, as I reviewed the literature, some of the recommendations are not relevant for these communities, such as that there should be new research on

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developing safer pharmaceuticals. That's clearly not something that's going to happen in Cuyahoga or in Summit. It's going to happen at the national level. So things like that I didn't include in my proposal for the bellwethers.

Q. Okay. So potential new research for safer pharmaceuticals. Anything else that you considered but did not include in your abatement plan?

A. I guess a similar thing would be, you know, Customs department interventions, to inspect more packages coming in from China for fentanyl. Again, that would -- that's not in the scope of what -- is not relevant to the --- for these -- for a plan that could be given in these communities.

So there are probably other things in that category, but basically I was -- I tried to incorporate as many of the practices that people were recommending and that had -- I mean, there's a pretty strong consensus in the literature about -- these

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are not particularly original categories, just about every one of these reports is recommending a similar set of things.

Q. So the category that you just mentioned that is not included -- as not being, in your view, relevant to something implemented by the counties is -- you refer to it as Customs control. That would include things like law enforcement efforts to stop illegal or illicit drugs from crossing into the United States from other countries?

MR. KO: Object to the form.

A. Sorry. Customs does not include -- you're talking -- you're saying what would the Customs department activities?

BY MR. MORRIS:

Q. Let's do it this way. Yes. So let me re-ask the question. I clearly got off track a little bit.

You're not including in this abatement plan things like federal law enforcement designed to try and prevent illegal drugs from coming into the country, correct?

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waves. You know, there was sort of our initial figuring out what our policy position was and estimating the cost of that. Then there was the legislation that Senator Baucus was moving and trying to figuring out that, and there was sort of the house -- I mean, there was -- I was working on this issue, though, from the beginning of the administration until the day the Affordable Care Act passed, and then beyond. But any particular estimate, you know, it depended on how much time we had to produce it.

Q. In footnote 7 of your report you state that -- if you could go to there -- that "My estimates of the plan costs are not reduced to reflect costs arising in connection with heroin use in the community where the individual had never used prescription opioids."

Do you see that?

A. Yes.

Q. What does that mean?

A. It means the same thing I told you a little earlier, that my plan is to

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abate. What I was asked to do was figure out an abatement plan for the whole opioid crisis, and I was not asked to parse out anything having to do with different reasons for components of where that crisis came from.

Q. Okay. So in other words, your cost estimates include the cost of treatment, for example, of people who never used prescription opioids?

A. Yes.

Q. If you were to try and account for individuals in your plan who never used prescription opioids, do you have an estimate as to how much lower the abatement plan would be?

A. I have not thought about that.

Q. You're noting that the abatement plan is not reduced based on an individual who has never used prescription opioids. Are there other reductions that are included?

MS. RITTER: Objection to the form.

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A. Unless this is a -- nothing is occurring to me, but I may be -- that was a broad question. As we get to individual elements maybe I will see some other place where I --

BY MR. MORRIS:

Q. Okay. Fair enough. I ask because you cull out specifically in footnote 7 that it's not being reduced for that purpose, and I was wondering if there was some category or thing that you have in mind that the plan is being reduced for.

A. I think I was just trying to be clear that this was -- that I was addressing the whole crisis.

Q. Okay. Let's go to Paragraph 18, please.

A. Yes.

Q. And there in the first sentence you say that you estimate that the "implementation of the programs of Abatement Plan evaluated to date will cost $5 billion in Cuyahoga County and $2.2 billion in Summit County over the next 15 years."

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Do you see that?

A. I do.

Q. What do you mean by "to date"?

A. I mean, that it is possible that more categories could pop up that experts start recommending as part of the solution to this crisis, and in that case I could amend them in my report in that way.

Q. As you sit here today, though, do you have in mind any other categories?

A. No.

Q. Going on in Paragraph 18, at the bottom of Page 7, the sentence that runs on the next page, it says "In addition, I am informed that the costs of certain services contemplated in the Plan have been or will be provided in documents or testimony from the Counties."

Do you see that?

A. Yes.

Q. What did you mean by that?

A. I meant that as this report was being written and lots of other depositions and other things were coming in, it was

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Q. When you say "budgeting model," that's what you did, right?
A. The budget model figures out the quantity of resources needed to address the epidemic, and then the associated price with each of those quantities that you multiply to get a cost.
Q. Now, it's true that you haven't tried to measure any impact that implementing any one or more of the categories that you've included in your abatement plan might have, correct?
MR. KO: Object to the form.
A. That's correct.
BY MR. MORRIS:
Q. Now, the authors of the Pitt article -- I refer to as the Pitt article.
A. That's fine.
Q. The Pitt team noted a number of limitations even under their modeling, correct?
A. I think they had a standard section at the end of the paper that discusses this.

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Q. If you go then -- let's turn to that. If you go to Page e6.
A. Okay.
Q. And there's a helpful heading that says "Limitations."
Do you see that?
A. I do.
Q. Okay. In that first paragraph the authors write after the first sentence, "First, the drivers behind the opioid epidemic are dynamic, non-linear, and uncertain."
Do you agree with that?
A. I think it depends. I think it's a complicated, compound sentence. I think we might want to talk about different parts of it.
Q. Okay. Let's talk about different parts of it.
Do you agree that the drivers behind the opioid epidemic are dynamic?
A. So what do "drivers" mean?
Q. Do you have an understanding about what the driver -- what drivers mean?

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A. It is certainly the case that things are going to change over time, that's what dynamic means, but I'm not -- this seems like a pretty vague sentence, so I'm not sure how to agree or disagree with it.
Q. Okay. Let's go on to something else.
The next sentence, can you read the next sentence, the one that begins "Although"?
A. "Although we tested the impact of each policy on multiple potential models of the current state, the epidemic continues to change and may be substantially different in just five years."
Q. Do you agree that the epidemic continues to change and may be substantially different in just five years?
A. I don't know what "substantially" means in terms of magnitude, but I certainly think the epidemic changes when you -- you know, fentanyl comes into Cuyahoga in a much greater extent and we see a lot more deaths or, you know, lots of

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things change over time, and it's one of the reasons in my plan that I say one needs to build into the plan a way to modify the plan over time as information comes in.
And that's why I put resources in to measure how things are coming in over time, because any time you implement something that is complex like this you want to be able to respond to conditions on the ground promptly.
Q. Your abatement plan estimates costs going out 15 years, correct?
A. Correct.
Q. Why did you choose 15 years to cost out the abatement plan?
A. It seemed clear that it was going to take, well, the resources and attention for at least that long to be able to make the progress that needs to be made against the crisis.
Q. When you say "the progress that needs to be made," what's your measurement of that progress?
A. I don't have a quantitative

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sense, but it's -- you know, if you look at the opinions of the medical experts like Dr. Lembke, she states quite clearly that we need these kind of resources and this isn't going to be something where two or three years of additional resources is going to make this crisis go away.
Q. Understood. I was just -- you had said that you needed 15 years to make the kind of progress, and I was trying to figure out, well, what's the progress then that -- measurement that you're using, if any?
A. You know, my -- as you mentioned in your question, I was not given the assignment of measuring the impact, and I think one would want to answer your more recent question in that context.
Q. You'd agree with me that trying to predict the costs of even a slightly complex problem out over a period of 15 years is difficult?
MR. KO: Object to the form.
A. Well, projecting 10, 15 years costs of complicated government proposals is

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done all the time. Congressional budget office does it, we did it at OMB, so it's a pretty standard practice that one does because you have to make decisions based on the information we have today.
BY MR. MORRIS:
Q. Is it difficult to do that?
A. I spent a lot of time getting trained and getting experience to be able to do it well. I guess -- I don't know if I would say about --
Q. Let me -- we talked about the fact that the -- what you're referring to as the opioid crisis is a complex, multi-faceted problem. Agree?
A. Agreed.
Q. And a complex, multi-faceted problem, trying to budget over 15 years for a plan to address it, is a difficult thing to do, correct?
MR. KO: Object to the form.
A. I don't know what "difficulty" means in this context. It is something I have been trained to do and have done many

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times in these kind of proposals.
BY MR. MORRIS:
Q. Difficult to predict accurately?
MS. RITTER: Objection.
BY MR. MORRIS:
Q. Let me be clear. It's not difficult to engage in the process perhaps. Difficult to predict accurately what the projected costs, what the costs will be for a complex problem like the opioid crisis?
MS. RITTER: Objection to the form.
BY MR. MORRIS:
Q. Agreed?
A. No, I don't agree. I think it's quite clear from the sources I've discussed that led me to choose the components of these plans, what level of treatment capacity, for example, is needed, and we have a good methodology, solid methodologies to figure out and project that into the future. And so, you know, I think it is possible to generate good forecasts

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into the future.
Q. If you go to Paragraph 20 of your report. And again, we're still on Exhibit 6, which is the April 3rd version of your report.
A. Yeah.
Q. I believe you mentioned this before in one of your earlier questions -- answers -- well, let me do it this way.
Can you just read the first sentence?
A. "Because it is possible that the epidemic will evolve in ways that either reduce or increase the need for resources relative to my primary estimates, it is appropriate for me as an economist to provide a range of estimates for lower cost and higher cost scenarios."
Q. So there you're recognizing that given future events, that actual costs of the plan you're proposing might be higher and they might be lower?
A. Yes.
Q. Okay. If you can go on to read

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identification.)
BY MR. MORRIS:
Q. Okay. I've handed you Exhibit 12. Do you recognize what Exhibit 12 is?
A. Yes.
Q. What is Exhibit 12?
A. It's a guide that the US Government Accountability Office has put out.
Q. And this is one of the documents that you cited in your report, correct?
A. Yes.
Q. If you go to Page 11 of your report.
A. Of my report?
Q. Yes. And that's where it says in Paragraph 28, the last sentence, "My framework follows the standard approaches used by the Congressional Budget Office, the President's Office of Management and Budget, and the Government Accountability Office in estimating costs and projecting budgets."
Do you see that?

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A. I do.
Q. And footnote 23 is a citation to the GAO Cost Estimating and Assessment Guide?
A. It is.
Q. And is the Exhibit 12 that guide?
A. It is.
Q. If you could turn to Page 9 of the guide, there's a chart that starts there -- actually, there's a table that starts there and runs for a few pages, and it's labeled "Table 2: The Twelve Steps of a High-Quality Cost Estimating Process."
A. Yep.
Q. Do you see that?
A. Yep.
Q. Did your creation of the abatement plan follow these steps for creating a cost estimate?
A. I did not review these steps in any detail. I was familiar with this guide from my time in government.
Q. Okay. Well, let me direct you

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to, for example, number 9, step 9.
Do you see that?
A. I do.
Q. In step 9, for example, is -- the description of it is "Conduct risk and uncertainty analysis."
Do you see that?
A. Yes.
Q. Did you do that as part of your abatement plan budgeting?
A. What I did is for the main component that I think we don't know exactly how the world is going to play out, I gave you high and low estimates that vary according to that, and that's a form of sensitivity analysis.
Q. Okay. So if you go to step 8 above that, that's "Conduct sensitivity analysis"?
A. Right.
Q. Do you see that? So that would fall -- what you just described would fall under step 8, correct?
A. Yeah, they're both techniques

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for trying to communicate both what is unknown and how estimates would vary -- can vary in alternative states of the world.
Q. Okay. But a sensitivity analysis, you'd agree with me, doesn't give a prediction of accuracy, correct?
MR. KO: Object to the form.
A. A sensitivity analysis sometimes is informed by one's assessment of what the likely range of an outcome is, and so sometimes it does incorporate some, I think, information about accuracy, but it's not the same as -- you know, for example, in here, if you have data on the probability distributions doing a Monte Carlo simulation, which is what they're talking about in number 9.
BY MR. MORRIS:
Q. So the sensitivity analysis is something that measures how much of a change there might be to the output, such as the estimated cost if the inputs change. Have I got that right?
A. Yes.

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Q. But the sensitivity analysis isn't something that measures how accurate the assumed inputs are?
MR. KO: Object to the form.
BY MR. MORRIS:
Q. Correct?
MR. KO: Object to the form.
A. The sensitivity analysis does exactly what you said. It takes different inputs and tells you how the results would change.
BY MR. MORRIS:
Q. Okay. You mentioned, or you referred to one of the bullet points in number 9 that reads "Use an acceptable statistical analysis method (e.g., Monte Carlo simulation) to develop a confidence interval around the point estimate."
And that's something you didn't do here, correct?
A. I did not do that here.
Q. The next bullet point is "Identify the confidence level of the point estimate."

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That's also something that you didn't do here, correct?
A. That's correct.
Q. Would you agree that that's a key step in a high quality budget?
MS. RITTER: Objection to the form.
A. One can only do Monte Carlo estimates when you have a probability distribution to use as the basis for them. And there are lots of problems where we don't have a data set to draw a probability distribution from, and that's why it's pretty uncommon to publish and do those kind of uncertainty analysis. You know, for example, when we were estimating the cost of the Affordable Care Act, we didn't do anything like this.
And so you will occasionally see this done in budgeting, but it's not -- you know, as I said in the very beginning of this discussion, it's the exception rather than the rule.
BY MR. MORRIS:

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Q. If you could turn to Page 153 of Exhibit 12.
A. That's the same exhibit we're in, right?
Q. Yes. The GAO document.
A. I lost track. Okay. You said 153?
Q. 153.
A. Okay.
Q. And this chapter is entitled "Cost Risk and Uncertainty."
Do you see that?
A. Mm-hmm.
Q. Now if you could turn to the next page, 154, there's a section entitled "Point Estimates Alone Are Insufficient For Good Decisions."
Do you see that?
A. I do.
Q. First, do you agree with that statement?
A. I don't think I agree with that in general. I think most of the times that we were making decisions in government, the

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best that we have is a point estimate, and so -- and we make decisions, important decisions based on that all the time, so I would not describe point estimates as insufficient.
Q. If you could read the first sentence -- actually why don't you -- if you could read aloud the first sentence of right underneath that heading.
A. "Since cost estimates are uncertain, making good predictions about how much funding a program needs to be successful is difficult."
Q. Do you agree with that?
A. I think it depends on what it is you're guesstimating. Some things are difficult to estimate and some aren't.
Q. And the more complex the thing you're trying to estimate, the harder it is to predict, or to estimate?
A. The more -- maybe the more unknown things are.
Q. You'd agree with me that there are a significant number of unknowns in the

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cost estimate that you created for the abatement plan, correct?
MR. KO: Object to the form.
A. I think we need to talk about particular components to get into that question.
BY MR. MORRIS:
Q. Okay. We'll come back to that then.
If you could go to the third paragraph underneath "Point Estimates Alone Are Insufficient For Good Decisions," it starts with the sentence "Point estimates are more uncertain."
Do you see that?
A. Yes.
Q. Can you read that sentence?
A. "Point estimates are more uncertain at the beginning of a program, because less is known about its detailed requirements and opportunity for change is greater."
Q. Do you agree with that?
A. Yes.

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Q. And then the next sentence, could you read that one, please?
A. "In addition, early in a program's lifecycle, only general statements can be made."
Q. Do you agree with that?
A. I think it depends. That is too blanket a statement.
Q. If you go to the next page on 155, in the first full paragraph there, the last sentence begins, and I'll read this one, "Thus, a point estimate, by itself, provides no information about the underlying uncertainty other than that it is the value chosen as most likely."
Do you see that?
A. Yes.
Q. Can you read the next sentence?
A. "A confidence interval, in contrast, provides a range of possible costs, based on a specified probability level."
Q. Okay. We've gone over that. That's something that is not part of your cost estimate for your abatement plan,

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correct?
A. I do not provide confidence intervals.
Q. But that's another way of stating in the sentence here what a confidence interval does, right, gives a range and then states, based on a percentage, how confident the person doing the budget is in the ultimate -- what the ultimate costs will fall within that range?
A. It gives you the probability distribution of the estimates.
Q. Okay. If you go then to two more pages in, 157, the paragraph that begins, the first full paragraph there, "One way to determine."
Do you see that?
A. Yes.
Q. Can you read that sentence?
A. "One way to determine whether a program is realistically budgeted is to perform an uncertainty analysis, so that the probability associated with achieving its point estimate can be determined."

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Q. Did you perform an uncertainty analysis being described here in this sentence for your abatement plan?
A. I just want to make sure I understand what they're using uncertainty analysis to mean here.
(Witness reviewing document.)
A. So I think -- I'm just reading this section of this report so I'm not sure if they defined uncertainty analysis previously, but if what they are saying here is that they did a Monte Carlo and out of the Monte Carlo they created a cumulative probability distribution, I did not do that in my report.
Q. Okay. And the next sentence there says, "A cumulative probability distribution, more commonly known as an S curve - usually derived from a simulation such as Monte Carlo - can be particularly useful in portraying the uncertainty implications of various cost estimates."
And that -- you didn't run an S curve?

A. You have to -- the S curve is just a way of plotting the outcomes of a Monte Carlo distribution. And as I said, I did not do a Monte Carlo distribution.
Q. So is it fair that you're not offering -- to say that you're not offering an opinion as to how accurate your cost estimates are?
MR. KO: Object to the form.
A. I think that I've produced reasonable estimates, so I do think they are accurate, and I am offering opinion that they are accurate.
BY MR. MORRIS:
Q. And to what degree of certainty are you opining that they're accurate?
A. I don't have a quantitative measure of the degree of certainty.
Q. And you built into the plan a continued re-evaluation of the plan over time to try and track to see whether the costs go up or down?
A. Yes, because whenever one develops a complicated multi-year plan, you

want to -- this is what one does all the time, and I do this at the GPL. When I've done this in government, you want to devise the best plan that you can devise today, and you want to be in a world to improve it over time as we learn more and as the world unfolds.
Q. Do you know what a cost-benefit analysis is?
A. Yes.
Q. And what is a cost-benefit analysis?
A. It's an analysis where one compares the costs of a program and the benefits of a program.
Q. It's all in the name, right?
You didn't perform a cost-benefit analysis as part of your work on your opinion, did you?
A. No, I was not asked to do that.
Q. I want to talk a little more, then, about what the $5 billion estimate for Cuyahoga and $2.2 billion estimate for Summit County represents.

First, am I correct, those are the total estimated amounts for all of your abatement plan costs for the two counties added up over the 15-year period, correct?
A. Correct.
Q. And you estimated how much money might have been spent in year 1 or might be spent in year 2, 3, and down the line, and that's what you've added up, correct?
A. Yes.
Q. You're familiar with the concept of the present value or net present value of money?
A. Certainly.
Q. Can you explain it to me?
A. Sure. That if I offered you $100 a year from now, you would likely not be willing to give me $100 today because a dollar today is -- most people prefer to a dollar in the future.
Q. And that's because the concept is to take into account that if you have a dollar today it will grow into something more

in the future?
A. Yeah, I would say that people have time preference. They prefer consumption today to time in the future, and because of that, the market has to pay one rate of return to get you to give up money today.
Q. And there's a calculation in economics to -- that you can do to try and determine the present value of a stream of payments that go out into the future, is that true?
A. Yes, absolutely.
Q. And did you do such a calculation for your 15-year plan estimate?
A. I don't provide one, but it's trivial. You can take the numbers in my report and calculate one in three seconds if you feel like it.
Q. Understood.
But the -- what I'm trying to get at is the roughly $7 billion of your estimated abatement plan for the two counties is not $7 million of today money?

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A. Right, they're in nominal dollars, but I provide all the information. If you would prefer to see that other information, I followed the practice that, for example, the Congressional Budget Office does in doing annual calculations, and then giving you the nominal sum. And I thought that was the more standard way to present that, but one can convert back and forth, I mean, literally in seconds.

Q. Okay. But you didn't -- and I get that, but that's not something you've done?

A. No. But again, I've given all the information you need if you wanted to know that number.

Q. Understood. Because my next question would be, do you know what that number would be?

A. No, but one could -- again, one could calculate that very fast.

Q. And that's a standard calculation. It is readily applied by economists and accountants?

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A. It's -- you know, it's more common, I would say, in benefit-cost analysis than in budget documents, but sometimes you'll see it in the budget documents. Like the Social Security Administration when doing its 75-year forecast will do it in a thing that's more like in a budget document.

Q. Does your estimated cost for the abatement plan take into account the fact that counties may get some money from, for example, the federal government specifically earmarked for the type of activities within your abatement plan?

A. So the scope of my assignment was not to parse out who would be paying for it. It was just to figure out what the needs were in the community, what services needed to be offered to address those needs, and then what the costs of all of that was.

Q. Got it.

So just so I'm clear, so again taking the total amount, estimated amount of $7 billion, that's the total amount of your estimated cost, and if there's money that's

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provided by the federal government, that would go to that, but you haven't reduced your $7 billion estimate taking into account money that the federal government may have already given Cuyahoga County, for example?

MS. RITTER: Objection to form.

A. I give you the total costs, and I'm not -- it was beyond the scope of what I was asked to do to figure out who would pay and what that would do.

BY MR. MORRIS:

Q. Fair enough. I'm really just trying to figure out what's embedded or not in the $7 million.

So, for example, some of the costs that you identified, and we'll go through the details in a little bit, are medical costs, and insurance companies sometimes pay for those medical costs. You didn't subtract out the amount that insurance companies may be paying for those costs in the future, correct?

A. Correct.

Q. What was the purpose in

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providing an estimated cost for your abatement plan?

A. I guess my understanding is that in some of the theories of this case, an estimated cost would be useful in figuring out what the defendants would end up paying in a way that would allow this problem to actually get abated.

Q. Are you saying that there should be a pot of money created that has 5 billion for Cuyahoga and roughly 2 billion for -- 2.2 billion for Summit County, respectively, now for them to draw upon?

A. I'm not giving an opinion on that. I was asked to figure out what an abatement plan would be and what it would cost, and that's what I give you.

Q. As a matter of economics, it wouldn't make sense to have a giant pot of money with $7.2 billion in it now for the counties to draw down upon over the course of 15 years. You agree with me on that, right?

MR. KO: Object to the form.

A. I think there may be two

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the report. Okay. The report -- okay. Yes, the report -- well, if we're going -- it depends -- if we're going to get into the details and the numbers, we will pretty quickly end up in exhibits, you know, in Exhibit 5, 7 and 8.

Q. So why don't we do this. We'll start -- why don't you put in front of you Exhibit 6 and 7, which I think gets us most of the way there, except for the errata which we'll deal with when we get there.

A. 6 and 7. Okay. We're good.

Q. Okay. So now I'm going to -- if you go to Table -- I'm going to start talking about Table 1, which also refers back to Table 0, but let me just ask some general questions about what is in Table 1 first. That's the first category of costs for treatment, excluding medication-assisted treatment, correct?

A. We're talking about the first row in Table 1?

Q. Yes.

A. Yes.

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Q. And that's the largest cost that you include in your abatement plan, correct?

A. That's true, yes.

Q. Okay. And by far that's the largest cost, correct?

A. It's my -- or four or five times the next biggest one, so I guess, yes.

Q. And roughly that combined is about $4.3 billion, if I've done my math correctly?

A. You just combined the two jurisdictions --

Q. The two jurisdictions.

A. I never do that in my head, but you said 3 plus 1.3 is 4.3. Good job.

Q. And we've talked about this before, but these estimates you have, going forward in time, these are estimates for treatment of actual people, that actual people will receive --

A. Yes.

Q. -- in the future?

And some of those people who

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are treated will not have any connection to the defendants in this case, correct?

MR. KO: Object to the form.

A. I don't have an opinion on that.

BY MR. MORRIS:

Q. Now, the starting point for the number of people who you estimate might receive treatment, if I understand it correctly, is calculations that you've done on Table 0?

A. That's right.

Q. So let's go there.

And just so I'm tracking, which exhibit are you looking at right now? Are you looking at 6 or 7?

A. I am looking at 7.

Q. Got it.

A. I hope that I've done it up to this point.

Q. Sorry. I'm going to organize myself here, just a second, for the questions.

Okay. In -- let me know if

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I've got this right. You have -- for each of the cost categories, you have a table, and you have a table that's labeled C, and a table that's labeled S that correspond to the two counties?

A. Exactly.

Q. Looking off of Table C.O, so Table 0 for Cuyahoga County, you start at the top with line item 1 of OUD rate.

Do you see that?

A. Yes.

Q. Okay. Can you explain to me what that means?

A. It is the percentage of the population in that county, age 12 or above, with opioid use disorder.

Q. Okay. And for -- and the total estimate you have there is 1.4 percent?

A. Yes.

Q. And that then ties to the source notes below?

A. Correct.

Q. You get to the 1.4 by adding .77 percent for OUD prevalence and .63 HUD

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prevalence?
A. Correct.
Q. So this is a situation where you are separating out the heroin use disorder?
A. I wouldn't say I'm separating out. I'm combining the two numbers to get the totals of what I'm modeling.
Q. Okay. But from your calculation, though, within footnote 1, OUD prevalence does not include HUD prevalence.
A. So there's two different terminologies going on in the literature here. I'm taking these numbers from the Pitt, et al. study, and they use OUD to mean the non-HUD -- OUD, and so when I am adding their number, their two numbers, I refer to them the way they do, but in my study I use OUD to be the combined amount.
Q. Let's take a look at the Pitt study. Let's pull that out as well. And that's Exhibit 12.
MR. KO: The Pitt study is Exhibit 11.

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MR. MORRIS: Oh, I'm sorry. Thank you. Exhibit 11.
BY MR. MORRIS:
Q. And you reference the -- well, let me ask you this way.
Where does the .77 OUD prevalence come from?
A. So there's a table of parameters at the end on, I guess it's page -- let's see where this is -- so this is in the appendix. I guess it's on page S.88. And if you look -- one, two, three -- four rows down you see the .77 number.
Q. Okay. And the source for that, there's a column next to the value of .77, and the source column says "Assumed."
Do you see that?
A. Yes.
Q. And then they -- the authors of this study cite to additional studies. Did you review those studies?
A. Can I just remember which ones they cited to?
Q. Sure.

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A. But I assume this is the National Survey of Drug Use and Health, but I just want to double-check that I'm remembering that right. Do you know where their citations go to?
MS. RITTER: For the .77, is that what you all are talking about?
MR. MORRIS: Yes.
BY MR. MORRIS:
Q. I have the listing of the references starting, or including on S.106.
A. Yeah, so I think they go under the CDC. I'm pretty sure that CDC number is -- originates in the National Survey of Drug Use and Health.
Q. Did you review those citations that they cite to?
A. Yes.
Q. And is that .77 based on Ohio data?
A. No, that's national data.
Q. And when it says "Assumed," what does that mean?
A. I do not remember exactly what

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that wording meant.
Q. Do you know what the ultimate underlying source for the .77 percent was? I know that it cites to -- the Pitt authors cite to other articles. Do you know how they calculated .77?
A. Again, I think the base input here is the National Survey of Drug Use and Health, which is a national representative survey that is the most commonly used source for figuring out what the prevalence of opioid use disorder is.
But that study has some limitations. In particular, it leaves out homeless populations, incarcerated populations, other institutionalized populations, and it's also a survey. And people often underreport substance abuse to surveys, so for that reason they're making adjustments, and I followed them in making adjustments to that underlying data.
Q. The authors of the Pitt article, they didn't do original research to try and determine the severe opioid use

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Cuyahoga -- sorry, the population receiving treatment is 3,033, and by year 4 it's 6,067, so that's doubling. That is a statement about treatment capacity. It's not -- I'm not making any forecasts about prevalence going forward.

Q. So I'm understanding this, let's just go to year 4, which is where you've actually gotten to the point of the estimate doubling. You're not -- that 6,067, and I'm looking at Page 7 now, 6,067 is not your estimate of how many people will receive treatment in year 4?

A. Oh, it is an estimate of how many people will receive treatment, but it's not based on an estimate in that year of prevalence. It's based on taking the initial year treatment capacity and getting to double of that.

Q. Okay. But the initial year is based on the prevalence rate, correct?

A. Yes.

Q. And then what you've done to get to year 4 is double that, correct?

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A. I doubled the capacity, but I don't have some underlying projection, for example, of how the population in the county is changing or anything like that. I'm doubling capacity for treatment.

Q. Okay. I'm really not trying to be obtuse here. Doubling capacity to me means that that's what the system could tolerate, not this is how many people I'm predicting will be receiving treatment, at least within the base case. Am I missing something?

MS. RITTER: Objection to form.

A. Is the -- I guess --

BY MR. MORRIS:

Q. We're talking --

A. Why don't you ask again.

Q. Let me ask again. Let me ask again, although I'm enjoying the conversation.

Your first year estimate is based on a prevalence rate?

A. Yes.

Q. And the only thing you've done

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to try and predict how many people will receive treatment in year 4 is to double that?

A. So I'm not trying to predict treatment. I'm trying to devise an abatement plan. So the question is if we're trying to be as aggressive as we can in treating this crisis, what additional capacity do we need. And based on my being -- the literature and the expert opinion of Dr. Lembke, I have come to the conclusion that we can double treatment, and that we should double treatment capacity, and then maintain that doubled capacity through the end of the 15-year period.

Q. Okay. This is where I'm getting to now. Are you saying -- because what you're ultimately doing for each one of these line items is giving an estimate as to how much it will cost, correct?

A. Mm-hmm.

Q. Is that a prediction of how much you think it is going to cost, or how much it could cost?

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MS. RITTER: Objection to the form.

A. I am saying that if we're going to make as much progress as we can on the opioid crisis in Cuyahoga, we should double the treatment capacity, and I am then telling you how much it will cost to double that capacity and maintain that doubled capacity.

BY MR. MORRIS:

Q. Are you offering an opinion that in your estimation the number of people who will receive treatment in year 4 will be 6,067 individuals in the Cuyahoga chart?

A. We will create the capacity to treat that many people, and I certainly hope all the slots would be filled. You know, maybe we only keep 98 percent of slots filled. But I'm not trying to parse that issue.

Q. Are you rendering an opinion about how many people actually will receive treatment in, for example, year 4?

A. I am rendering an opinion that the abatement plan that is needed in these

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treatment needs for the people who are relapsing or who are getting longer term treatment, so I assume the same distribution.
Q. Is there a measurement of success of the abatement program that is reflected in the estimates for the number of people who are going to be treated?
A. I have not made any projections about outcomes here. All I've simply done is followed the guidance of the literature, I've consulted the experts I've consulted that we need to ramp up capacity and maintain that capacity for at least 15 years.
Q. So who are you relying on for the concept or the idea that the number of people potentially receiving treatment in year 12 should be the same as those in year 5, and that the cost applied to that treatment should be the same?
MR. KO: Object to the form.
A. Can you break that question up? You had two different --
BY MR. MORRIS:
Q. Sure.

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A. -- and in the middle there.
Q. Who are you relying on for the proposition that the number of people in year 12 as receiving treatment would be the same as the number of people in year 5?
A. So Dr. Lembke's report specifically says that we need to ramp up treatment and maintain it for the extended period of time.
Q. Okay. Are you referring to Dr. Lembke's assertion about percentage of individual people could go from 20 percent to 40 percent? Is that what you're referring to?
MR. KO: Object to the form.
BY MR. MORRIS:
Q. I'll bring out the report. I just want to know -- I want to get you to the right portion of the report.
A. So that --
MR. KO: Hold on. Is there a question?
MR. MORRIS: It was a follow-up. But let me ask it this way. That's a good point.

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BY MR. MORRIS:
Q. Let me first do this.
Can you go to your report at Paragraph 42, Exhibit 6? If you could read the second and third sentences of Paragraph 42, please.
A. "The cost estimates anticipate that the number of individuals that receive treatment will ramp up over four years such that the number of individuals receiving treatment for OUD will double between 2020 and 2023."
Q. Okay. And then the next sentence?
A. "I understand that the Expert Report of Anna Lembke explains then an effective Abatement Plan could expand its reach in this way by 2024."
Q. Okay. And you say there that you understand that her report says that. Have you read her report?
A. I have.

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(Whereupon, Liebman Exhibit Number 13 was marked for identification.)
MR. KO: Sean, up to you, but maybe after this round of questioning we can have lunch?
MR. MORRIS: Yeah, that was my plan. I'm going to tie this off and then we can go to lunch.
BY MR. MORRIS:
Q. If you go to Page 96, please. If you look at Paragraph 17.
A. Yes.
Q. And she writes in 17, "With an aggressive infusion of resources and efforts in Summit and Cuyahoga Counties, it would be reasonable that within four years the number of bellwether individuals with OUD who receive substance abuse treatment services within a year could double, assuming that only 20 percent of individuals with OUD currently receive treatment."
Do you see that?
A. I do.

Q. Okay. Is that what you were referring to as what you're relying on for the doubling of the potential treatment of individuals?

A. That's one place. There may be a couple other places where this comes up in this report, but yes. Yes, I think that's the right place.

Q. And there she does not cite to any sources, correct?

A. That's right. I want to emphasize, though, that the specific numbers I take from Lembke, but there are other sources that I've drawn upon in forming my opinion that we can achieve, and that this is the right level of treatment to be targeting in this abatement plan.

Q. There are other sources that talk about doubling the people who will receive treatment within Summit and Cuyahoga?

A. That it would be possible that one can achieve -- that increases in the number of people who receive treatment if one implements an effective plan.

Q. Okay. Do you have any empirical reason to believe that?

A. Well, if you look, for example, in Vermont which has, I think, one of the most aggressive efforts, they were able to achieve when they undertook that plan increases in the percentage of people who were receiving treatment that I think were higher than doubling.

Q. And where is that located? Where is that information located?

A. Can we go to the -- actually we can get it out of -- if we go to my report and go to -- this is going to be like 24 or 25. Let's see if I can find it.

I think that may be in the Brooklyn and Sigmon article cited in footnote 24, although there were other Vermont papers that I read, so, I'm not 100 percent sure that that was the one I'm thinking of.

Q. Did you put a numerical estimate as to how confident you are in the number of people who will receive treatment in year 11, let's say?

A. So that's the area where I did do sensitivity analysis because I wanted to show how the results can change depending on if the world turned out in different ways.

Q. Right. So we talked about that, though.

The sensitivity analysis is if the inputs change, how much will they change for any given line item, right?

A. That's correct.

Q. That's not an estimate of how competent one is in the prediction of the output number, correct?

MR. KO: Object to the form.

A. That's correct.

MR. MORRIS: Okay. Why don't we take a break for lunch.

THE VIDEOGRAPHER: The time is 12:52 p.m., and we're off the record.

(Whereupon, a luncheon recess was taken.)

AFTERNOON SESSION

THE VIDEOGRAPHER: The time is 1:48 p.m., and we're on the record.

BY MR. MORRIS:

Q. Okay. Dr. Liebman, you realize you're still under oath?

A. Yes.

Q. Has anything that we've talked about during the morning session caused you to change any of the opinions in your report?

A. No.

Q. Before we went on break we were talking about the estimated increase in the number of people receiving services over time, and we talked about Anna Lembke's expert report that you cite in your report.

And then when I asked you whether there's any other bases for that assumption in your opinion, you mentioned a Vermont article.

Do you remember anything more about the Vermont article? Do you remember what it was entitled?

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A. I can look up the title. I think we read it before.
Q. Okay. I'm sorry, you're right, you pointed that out to me. Let me ask it this way.
Is there anything other than the Lembke report and the Vermont article that you're basing the increase from 20 to 40 percent?
MR. KO: Object to the form.
A. I'd say the general view that it is possible to greatly increase the percentage of people in treatment comes from a much broader set of sources, including the federal government's strategies around -- recommended strategies around combatting the opioid crisis, the SAMSA reports, the CD reports that are recommending strategies, all those contemplated a much higher level of treatment than we're currently doing.
And my other conversations with medical experts like Dr. Alexander and with local physicians on the ground in the two bellwethers all contributed to me believing

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that this was a reasonable assumption.
THE VIDEOGRAPHER: Can we go off for a second?
The time is 1:50 p.m., and we're off the record.
(Pause.)
THE VIDEOGRAPHER: The time is 1:52 p.m., and we're on the record.
BY MR. MORRIS:
Q. These other sources that you're referring to, do they predict a doubling of the number of people who could receive treatment?
MR. KO: Object to the form.
A. Some of the conversations with other medical experts, in some of those conversations I was able to confirm that they thought that was a reasonable assumption for me to be making.
BY MR. MORRIS:
Q. And which of the medical experts are you referring to?
A. I'm thinking particularly Dr. Parran in Cuyahoga.

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Q. And do you know what he was basing his agreement with you about doubling the number of people who could receive treatment, what he was basing that on?
A. My impression, based on his expertise in treating people and designing the systems and treating people in the community.
Q. You don't know whether he had any empirical analysis to back up his agreement with you?
A. I don't know.
Q. So keeping on Table 1 and using Cuyahoga as the example while we're looking at year 1 where there's 3,033 people listed in the population receiving treatment on the base case, and then increasing to 6,067 in your report moving forward, you mentioned in one of your answers before people moving in, people moving out of that number. Is it the same cohort of people year-over-year that are in that category?
MR. KO: Object to the form.
A. What category?

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BY MR. MORRIS:
Q. So when you're listing the people who -- in the population receiving treatment, and in year 5 it's 6,067 and in year 6 it's 6,067, it's not the same 6,067 people between year 5 and year 6, is that right?
MS. RITTER: Objection to form.
A. Some of the individuals overlap, but some will be different.
BY MR. MORRIS:
Q. And have you done any calculation as to how many will overlap and how many will be different?
A. I don't specifically model that because I'm not fundamentally modeling the people. I'm modeling that needed treatment capacity.
Q. Okay. Again, I really don't want to beat a dead horse on this one, but you say modeling the treatment capacity. But the line item is titled "Population Receiving Treatment," it's not capacity to receive treatment, correct?

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could. And that's treatment services for the medication assisted treatment, correct?
A. That's the medication treatment itself, not -- the same people might also be getting some of the appropriate treatment, but this is the medical, the medication component.
Q. Okay. And for this one you also calculated, or you estimated that the number of people, percent of the population receiving MAT treatment would double by year 4?
A. Not quite. The population receiving MAT quadruples by year 4. So you see 4,045 is twice 1,011.
Q. I'm sorry. Caught my on my bad reading skills there.
And what is that based on?
A. It's very similar to the conversation we already had about the doubling of treatment. There is both a general consensus in the literature, in the literature that is recommending abatement strategies that one can significantly

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increase the percentage of people receiving MAT and that that would be a good thing to do to reduce deaths and improve well-being, but then the specific number I use relies on Dr. Lembke's report.
Q. The same reference that we looked at before?
A. It's roughly, it's maybe a paragraph later than where we were looking.
Q. Okay. We were on Page 96 before of the Lembke report, and I'm sorry, I already lost track of which exhibit that is.
MR. KO: I don't think you ever marked it as an exhibit.
MR. MORRIS: I did. I probably didn't say it.
A. On mine it's Exhibit 13.
BY MR. MORRIS:
Q. Exhibit 13. Thank you. Before we were in -- on Page 96, Page 17, is there a different reference to the increase for MAT services?
A. We were in Paragraph 17 before, and I think you want to look at Paragraph 18

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now.
Q. Okay. And there does she cite to any support for her estimate of quadrupling the number of people who receive MAT treatment?
A. I think she cites to a study down here which I'm not familiar with, but then she also notes, I think, in Paragraph B that she's relying partially on evidence from Massachusetts and Vermont.
Q. Okay. You said that you, for the assumption of moving the MAT treatment, quadrupling the number of people who receive the treatment, you referred to Lembke, discussions that you've had. What else beside Lembke did you rely on for that? I've forgotten what your earlier answers, I'm not trying to trick you. You mentioned Lembke. What else did you rely on for your assumption of your estimation of quadrupling people who receive MAT treatment?
MR. KO: Object to the form.
A. So in, for the -- for my conclusion, my general conclusion, that it is

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possible to greatly increase the percentage of people receiving MAT, that comes from, if we turn to -- I've lost my report. Right here. If we turn to my report, Page 12, footnote 24, you can see the CDC report "Evidence-Based Strategies For Preventing Opioid Overdose, What's Working in the US." You can also see the Surgeon General's report "Facing Addiction in America, the Surgeon General's Spotlight on Opioids." So both of those recommend that the nation take efforts to greatly increase the amount of MAT and think that it can happen and think that it will have a major impact on deaths and other harms. I spoke with the national experts like Alexander and Lembke and discussed this with them and with local physicians like Dr. Parran, Dr. Smith, so all of those approaches to gathering information which is what I do whenever I'm trying to design a solution to a policy problem, read the literature, gather information from national experts, talk to local people, they all informed my judgment that it was reasonable

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to rely on the numbers that were in Dr. Lembke's report.
Q. You mentioned speaking to Dr. Alexander. How often did you speak -- how many times did you speak to Dr. Alexander?
A. I don't know the exact number. I would have to go look at my calendar to figure out exactly how many.
Q. Did you talk to Dr. Alexander following his deposition?
A. No.
Q. Did you talk to Dr. Alexander in preparation for your deposition today?
A. No.
Q. Did you talk -- did you talk to Dr. Lembke?
A. Yes.
Q. How often did you -- how many times did you talk to Dr. Lembke?
A. Either once or twice. I remember specifically once, but there might be one other.
Q. How long ago was that?

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A. I think it was -- I'm pretty sure it was in 2018, and I could guess what month, but it would be plus or minus two months, so that's probably not a good thing for me to do.
Q. What did you talk to Dr. Lembke about?
MR. KO: To the extent that these communications and conversations happened in the presence of counsel, I'd instruct the witness not to answer.
A. I would say the main -- well, there were a lot of people, so it was a long -- the call I'm remembering was a long call, but it was two and a half hours or something like that. And so there were a lot of topics discussed. One thing I remember spending a lot of time on in that call was the question of whether someone is ever cured of OUD or whether people need persistent treatment for a long period of time, and Dr. Lembke's view was that one needs to think about addiction as a chronic condition that lasts for

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someone's lifetime after they've experienced addiction, and that we have to have treatment capacity capable of serving the whole stock of people who have ever experienced OUD for quite some time. So that was like -- that was one of the things we talked about.
BY MR. MORRIS:
Q. Do you remember anything else?
A. We definitely talked about the question of if one put a lot more resources into this problem what percent of people could one get into treatment and get to take up MAT, you know, because you could imagine doing an abatement plan that says that 15,000 people with OUD, let's assume costs associated with giving 100 percent of them MAT, and I needed to decide whether that was a reasonable thing to do or whether I should assume that we were going to treat a number smaller than 100 percent, so there was discussion of what the evidence suggested was, could be achieved with an injection of additional resources.
Q. You mentioned you also talked

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to Dr. Alexander, and I forgot if I asked you this so I apologize. How many times did you talk to Dr. Alexander in connection with this case?
MR. KO: Asked and answered, but you can answer again.
A. I don't remember the exact number.
BY MR. MORRIS:
Q. You don't remember how many times you talked to him? I don't remember that you said you don't remember how many times you talked to him. All right. Do you remember what you talked to him about, though?
A. So there were a variety of conversations, so --
MR. KO: I provide the same instruction as before to the extent that his communications were with or involving counsel, I instruct the witness not to answer.
A. I would say there were two broad categories of conversations. One was

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I've encountered, although maybe someone in the private sector does that.
Q. There are differences, though, depending on the kind of thing you're trying to measure, in inflation rates based on geography?
MR. KO: Object to the form.
A. I think the more relevant issue is that there are difference in levels of prices based on geography that what you would pay someone to do a job in Cuyahoga might be different than what you'd pay them to do the job in Los Angeles, and those kind of level differences are reflected in my report. So for example when we are putting in a social worker salary, we're taking them from the data from existing social worker salaries in the specific bellwethers, so I think I incorporated what is the most important regional variation to incorporate.
BY MR. MORRIS:
Q. Okay. Let me, before we get back into the other tables let me just finish this off. Did you have e-mails with McGuire?

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A. Yes.
Q. And what were the -- substantive e-mails regarding your opinions in this case, you had those kind of e-mails?
MR. KO: Object to the form.
BY MR. MORRIS:
Q. The reason I asked it that way is before I got chastised for potentially asking you about e-mails that wanted to know about the weather, so I'm only asking you about e-mails, substantive e-mails related to the opinions that you're giving in this case. Did you have such e-mail exchanges with McGuire?
A. Yes.
Q. And what was the nature, the subject of those e-mails?
A. The main one I recall was a discussion of the rate of opioid use disorder in the bellwethers.
Q. And is that one where he gave you a reference to look at, or is he just giving you his opinion about it?
MR. KO: Object to the form.

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A. We were discussing different ways of extrapolating from national rates to local rates, and one possibility was to use the relative mortality rates in the bellwethers relative to the nation, which would have resulted in a higher rate of opioid use disorder than I use in my report and higher expenditures on treatment. And we were discussing the relative merits of that versus doing what I did, which was assume that the national numbers applied to the bellwethers.
BY MR. MORRIS:
Q. Did you have e-mail, substantive e-mail exchanges about your opinion with Gruber?
A. Any e-mails I had with Dr. Gruber were in the first month or so of the case, and I'm pretty sure they weren't any things that were substantive having to do with my opinion.
Q. Okay. Let's go to Table 4 which I have starting at Page 13 of 144.
A. All right.

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MR. KO: Just to be clear, it's C.4, right?
MR. MORRIS: C.4, correct. I know that there's two Table 4s, but we'll start with C.4. And this is your estimate for the cost of connecting individuals to services, is that right.
A. Yes.
BY MR. MORRIS:
Q. Okay. Now, in this category you have staffing of a 24-hour, 7-day-a-week referral line. You have staffing for emergency departments, transportation assistance and web-based referral systems?
A. Yes.
Q. What's your basis for those items as effective for connecting individuals to services?
A. So first as a general point, that I think there's a very strong consensus in both the national literature and in my conversations with individuals in the communities that one of the biggest

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social workers to be employed for this purpose.
A. Yes.
Q. Do you see that?
A. It sounds right, but I'm not seeing it exactly.
Q. Yeah, I'm sorry. It's line item 1 actually. This is for the Cuyahoga version of it.
A. Yeah, I've got Summit. That's why I'm having trouble here. Yes.
Q. Okay. What is that -- do you know what that means with respect to the terms of ratio of social workers to students?
A. Yes, so that's all sort of explained in this long footnote 1. Would you like to go into the details?
Q. Well, let me ask it this way. Would there be -- what would the metric be to determine success or not with this program?
A. I would measure whether -- I would measure the rate at which teenagers and people in their early twenties were becoming addicted to opioids over time and whether

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that was coming down.
Q. And the goal would be to, what you just said --
A. Exactly, yeah.
Q. -- reduce the number of people in the future, kids in the future who become addicted, correct?
A. Yes.
Q. And have you calculated a potential estimate of how many -- the level of reduction that would result as a result of implementing the school-based prevention programs?
A. My analysis doesn't involve creating projections of the future opioid population.
Q. If you go to Table 14, and this is the Cuyahoga version of it. It starts at Page 46 of 144, and this is for the cost of medical provider education and outreach category. You have here three full-time equivalent medical outreach providers for Cuyahoga. Do you see that?
A. I do.

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Q. What would these three people be doing?
A. They would be doing a variety of activities to try to coach providers in appropriate prescribing practices of opioids, and they would probably also, if we could get the data sharing working right, would be identifying the 5 to 10 percent of prescribers who seem to have the highest rates of prescribing and focusing efforts particularly on them.
Q. If you look in the note number 1, there's -- it's based on an assumption that approximately 10 percent of physicians will be targeted for education. Do you see that?
A. Yes.
Q. Why did you assume that percentage of physicians being targeted for education?
A. When I've talked to medical experts who have been involved in this kind of medical detailing, that's what they've described as the kind of strategies you

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employ to focus your attention on the people who seem to -- who might be the ones who are overprescribing.
Q. And do you know how many visits per year that would mean for physicians by the outreach individuals?
A. I have a number in my head, but I just want to make sure it's the same one that I'm using here.
Q. If you go to Page 134, which is the further backup material for the tables.
A. Okay. It has the two. That was the number I was going to say, but I wanted to make sure I was right. Okay.
Q. Okay. So two, this would be a target for two physician visits per year by the employees in this category, the practitioners?
A. And that's an average. In fact, you wouldn't literally go to everyone for two. Some may need more visits. Some may need less.
Q. The goal of this also would be to reduce the number of people who eventually

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become in the category of opioid -- having opioid use disorders?
A. All of the components of the prevention plans that we're talking about that you try to prevent people from becoming misusers or addicted to opioids.
Q. Okay. And like the other preventative categories, you don't have a metric to determine or a number in mind to determine success of those programs?
MR. KO: Object to the form.
A. I think in this one it's quite clear what metric one would use to tell if you're making progress, which is whether prescriptions were coming down. In particular I hope one would be able to do a more nuanced version and be able to measure the amount of appropriate and inappropriate prescriptions. So I think one could track progress on this one.
BY MR. MORRIS:
Q. You don't have a goal set, though, as part of your -- this portion of your abatement plan?

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A. The goal is to make as much progress as one can make.
Q. Let's go to Table 16. And that's at Page 58 of 144 for the Cuyahoga version and 51 for Summit County.
A. Yes.
Q. And it's cost of law enforcement investigations.
A. Mm-hmm.
Q. And have you an estimate for 25 detectives investigating overdoses. Do you see that?
A. Yes.
Q. And for support for that, you have a citation to the deposition of Gary Gingell?
A. Yes.
Q. Okay. Is that the basis for your number of detectives for Cuyahoga County?
A. Yes.
Q. And you cite to two pages from his deposition. Do you see that?
A. Yes.

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(Whereupon, Liebman Exhibit Number 15 was marked for identification.)
BY MR. MORRIS:
Q. Giving you what's been marked as Exhibit 15, okay. If you can go to the pages that you cited there of the Exhibit 15 which is the deposition transcript for Gary Gingell, if you can go to the pages in that deposition transcript 243, 244.
(Witness reviewing document.)
Q. You see his testimony there at the bottom of Page 243 where he talks about, he says "I could use, yeah, with the volume of -- with the numbers here, 243 deaths. I'll give you an example. The homicide unit had, I don't know, 110 or 115, whatever it was, homicides last year with, I think, 14 detectives, so my guys had 243 death cases with 5 detectives and another 1300 something nonfatal cases. So yeah, I could keep that many people busy easy, and then you would need the bosses. Each squad would need a sergeant. You would need a lieutenant.

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"Question, so if you could say you needed 20 to 25 more, it would be for the HIDI?
"Answer, for the HIDI."
Is that what you based your estimate of 25 detectives in Table C.16?
A. Yes, that and a similar conversation with him in person.
Q. Okay. So you had a conversation with him where he told you he thought that he could use 25 additional detectives?
A. Yes.
Q. Did you talk to anybody else about the number of detectives that might be needed?
A. So I looked at the death statistics and the caseloads to verify that his view of this was reasonable.
Q. And in Summit County, you have four additional?
A. Yep.
Q. What was that based on?
A. It was again based on the view

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inflation rate for any of the categories in your estimate, your cost estimate here, those numbers could have been lower, correct?
A. Mechanically if I used a lower inflation rate, the number would be lower.
Q. I want to go back to the discussion that you had earlier about your conversations with Dr. Alexander who has been identified as an expert in this case. Do you recall generally that testimony from earlier?
A. Yes.
Q. I believe you said that one conversation that you had with Dr. Alexander pertained to certain components of the abatement -- your abatement plan, correct?
A. Yes.
Q. Were there any components of your abatement plan that Dr. Alexander specifically recommended?
MR. KO: Objection. Asked and answered.
A. I don't remember. I mean, as I've said a few times today these components are common across just about every proposal

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for abating this crisis, so the fact that there's a lot of overlap between what I was reading, what he was saying, what other experts is saying is not a surprise here.
BY MS. HIBBERT:
Q. Let me ask it a different way. Were there any components of your abatement plan that you didn't already have included in the plan that Dr. Alexander then recommended to be included?
A. I'm just looking at my components to see if there's anything that I think we didn't already know about from five other sources.
There's nothing that pops out that I didn't already know would likely be a component.
Q. Were there any components of your abatement plan that Dr. Alexander recommended not be included?
A. No.
Q. Same question for any components of Dr. Alexander's abatement plan, did you offer any recommendations as to his

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abatement plan?
A. No.
Q. Have you reviewed Dr. Alexander's expert report in this case?
A. Yes.
Q. So then you're aware of some differences in the total cost estimates for some of your overlapping programs, is that right?
A. He's doing national estimates and I'm doing bellwether ones, so it's not a direct comparison there.
Q. There's no direct comparisons for any of the overlapping components of either of your abatement plans, is that your understanding?
MR. KO: Object to the form.
MS. RITTER: Object to the form.
A. Can you ask that again, please?
BY MS. HIBBERT:
Q. There's no direct comparisons for any of the overlapping components for either of your abatement plans, is that your

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understanding?
MR. KO: Same objection.
A. His estimates are national and mine are local, so one would have to figure out some way to convert the national ones to the local estimates, for example, dividing by the ratios of opioid deaths or population or something like that before you could compare the magnitudes.
BY MS. HIBBERT:
Q. You're aware then, if you reviewed his report, that his abatement plan is for a 10-year time period. Is that -- are you aware of that?
A. I don't specifically remember that, but I take your word for it.
Q. Did you have any conversations with Dr. Alexander as to why he had a 10-year abatement plan versus your 15-year abatement plan?
A. No.
Q. Do you have an understanding of why there would be a difference in the length of the abatement plans?

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MS. RITTER: Objection. And I would instruct him not to answer. In case he would have to rely on a conversation with counsel in order to answer the question, I would instruct him not to answer only that portion of an answer that he would be tempted to provide.

BY MS. HIBBERT:

Q. With that instruction, can you answer?

A. I do not know why he decided to use 10 years.

Q. Why did you decide to use 15 years for your abatement plan?

MR. KO: Objection. Asked and answered. Go ahead.

A. Because from reading the literature on abatement plans and from talking to both national and local experts, I came to the conclusion that it was going to take sustained effort over a 15-year period to abate this crisis.

BY MS. HIBBERT:

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Q. What specific national and local experts did you speak to and rely upon in making that determination?

A. I think I can't point to the specific ones, but there were a lot of different conversations and things I read.

Q. Can you point to any specific literature that you relied upon for that determination?

A. Not off the top of my head.

Q. Is there any way that I can, you know, know sitting here today what the basis is for your determination that a 15-year abatement plan is most appropriate in this case?

A. I think you can see in the medical expert reports of Dr. Lembke, for example, that medical experts think that we need a sustained effort at least that long. Dr. Lembke talks extensively about how people who are addicted today, many of them are going to need lifetime treatment, and so I think that's one of several places where you can see quite clearly the medical consensus

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that this is not a short-term -- it's not -- there's not a short-term solution to this problem, that it's going to take sustained effort over a long period of time to abate the opioid epidemic.

Q. Lifetime is certainly more than 15 years, right?

MR. KO: Object to the form.

A. Sorry, you're saying that people live longer than 15 years?

BY MS. HIBBERT:

Q. Your lifetime, your 15-year abatement plan isn't to take into account the lifetime of any particular person that might be serviced by this plan, is it?

MR. KO: Object to the form.

A. Sorry, I give a 15-year plan. I would expect that we need to continue to spend resources on this beyond 15 years.

BY MS. HIBBERT:

Q. Does Dr. Lembke discuss why a 15-year abatement plan would be better than, say, a 10-year abatement plan?

A. I don't recall specifically.

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Q. Have you spoken to anybody aside from counsel in this case about the appropriate length of time for an abatement plan?

MS. RITTER: Objection to the form. Foundation.

A. Yes.

BY MS. HIBBERT:

Q. Who?

A. I did a phone call that was a group call with several of the medical experts where we explicitly discussed this topic.

Q. What medical experts did that include?

A. Dr. Ryan from Cincinnati, Dr. Parran from Cuyahoga, and Dr. Lembke.

Q. And what was the substance of that conversation?

A. Among the topics we discussed was whether the level of services in an abatement plan needed to extend beyond 10 years, and the consensus out of my discussion with those doctors was that it did.

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A. Are you asking about costs in the past?
BY MS. HIBBERT:
Q. Correct.
A. I am not.
Q. And you're not offering any opinions regarding any costs incurred or to be incurred by plaintiffs outside of what is detailed in your abatement plan and estimate of costs, correct?
MR. KO: Object to the form.
A. The opinion I am offering is that there is -- that one can construct an abatement plan and that one can have costs on it. That's what my opinion is.
BY MS. HIBBERT:
Q. And all of your opinions regarding your abatement plan and your estimation of the costs are included in your report, the supplemental report and the supplemental appendices that you have -- that have been submitted to us in this case that we've looked at here today, is that right?
A. Yes.

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Q. You don't have anything else aside from what you've told us about today, I think there were two circumstances, that you intend to supplement or change in any way with regard to your opinions, is that right?
MR. KO: Object to the form.
Asked and answered.
A. That's correct.
BY MS. HIBBERT:
Q. There were a number of the components to your abatement plan where you seem to assume a population that stayed constant over time. I think you said it included child welfare population, the maternal program, inmates with opioid use disorder, and the homeless population. Would you agree with that?
MR. KO: Object to the form.
A. In most cases I am assuming that the capacity needs stayed constant over time, is the specific thing I'm assuming.
BY MS. HIBBERT:
Q. I'm sorry, the capacity for what?

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A. For example, with the jails, in Cuyahoga I recommend that there be two specialty facilities available to treat people with addictions and that those facilities that would be -- well, there's one already, but the additional facilities would be open for the full 15-year duration.
Q. And with regard to the child welfare, we can take a look at the table if you'd like, you're also assuming that the children placed in foster or institutional care, the number of children placed in foster or institutional care stays constant over the 15-year time period for your plan, correct?
MS. RITTER: Objection to the form.
A. I assume that there is a number of social workers and caseworkers and other clinical staff in that department that we need to get to and that we would then keep that level constant.
BY MS. HIBBERT:
Q. Based on the fact that the number of children in those programs would

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stay the same, is that fair?
A. Well, I'm basing the number based on the needs today, and then I'm assuming that we are going to need that higher capacity going forward.
Q. You're assuming that the needs stay constant for the next 15 years, is that fair?
A. I'm assuming that the service, yeah, the same level of services would be provided, yes.
Q. Because the need would be there, the need would stay constant?
MS. RITTER: Objection to form.
BY MS. HIBBERT:
Q. I'm not trying to beat around the bush. I just -- I'm asking a question. You're answering a little bit of a different question.
A. Well, because I didn't -- the way I thought about what I did isn't the way you're phrasing it. The way I thought about it was I figured out the level of services that are needed now and I assumed that that

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level of services would continue to be available into the future.
Q. Are you offering an opinion in this case as to the level of services that will continue to be needed in the next 15 years for any of the components of your plan?
MR. KO: Object to the form.
A. I think implicit in making a 15-year projection of an abatement plan, I am doing my best job to project what those service needs will be.
BY MS. HIBBERT:
Q. Earlier you testified, I believe, and correct me if I'm wrong, that the abatement plan and cost estimates don't identify or take into account who should be paying for any of these estimated costs, is that correct?
MS. RITTER: Objection. Asked and answered.
A. That is correct.
BY MS. HIBBERT:
Q. And that includes the

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individual defendants in this case, right?
A. That's correct.
Q. And it may also include the plaintiffs themselves, is that fair?
A. I'm sorry, the question about the plaintiffs? Say the question again, please?
Q. Sure. Is it fair to assume that your -- strike that.
Is it fair that the plaintiffs themselves may actually contribute to the estimated costs, paying for the estimated costs in your abatement plan?
MR. KO: Object to the form.
A. I don't have any -- I don't have any opinions about that. I'm just explaining what the resource needs are, and I don't have a -- I have not formed an opinion about who would pay.
BY MS. HIBBERT:
Q. And your plan doesn't take into account any third-party payers like the federal government or the State of Ohio or any insurance companies or anybody like that,

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correct?
A. I wasn't asked to figure out who would pay for this. I was asked to figure out what the needs were to abate the opioid crisis.
Q. Would there be a way for somebody who would want to make that determination to look at your abatement plan and estimation of costs and break out what, if any, portion would be attributable to, say, the individual defendants in this case?
MR. KO: Object to the form.
A. I think in order to do that, one would have to incorporate some additional information beyond what's in my report.
BY MS. HIBBERT:
Q. What additional information would we need to do that?
A. I think we're about to get into a discussion of legal theories of blame that I am not qualified to discuss.
Q. You're not qualified to discuss that and you haven't done that in your report, or your plan, correct?

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A. That's correct.
MR. KO: Object to the form.
BY MS. HIBBERT:
Q. Is there any way to determine, based on your abatement plan and the cost estimates, what's already being paid for or a type of program or component that's already being paid for by, like, the federal government, for instance?
A. In constructing this plan and thinking about what should go in it, I thought about both how do we continue the things that are already being done and how do we do enough additional so that we make as much progress as possible on the opioid crisis. So in thinking about that and understanding what's currently being done, some of the information I gathered would allow one to figure out who was paying for things now.
Q. And do you have that -- have you made a determination and offered an opinion here in this case as to who is ultimately -- strike that.

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split up the remaining amount of time. He wanted a break in between like at the halfway point of the hour 25, so I think we're around there, so if there's a good point for your to break.

MS. HIBBERT: Let me just finish this line.

MR. KO: Yeah, of course, I just wanted to make sure you're aware.

BY MS. HIBBERT:

Q. Does your model also take into account the efforts of the -- Summit County's opiate task force? I know -- I don't think that's mentioned in your report.

A. I'm certainly aware of their -- of the efforts going on in the Summit communities.

Q. Now, the cost estimates that you have put into place here -- let's take for example the naloxone distribution. That's something that both the Cuyahoga County and the Summit County opiate task force have already begun implementing that

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program, is that correct? Is that your understanding?

MR. KO: Object to the form.

A. Both communities have expanded the distribution of naloxone in recent years.

BY MS. HIBBERT:

Q. So the cost estimates in your program pertaining to the naloxone distribution, those are not taking into account the money that's already being spent by the counties for those programs, is that right?

A. No, it's not right. It takes into account both that money and the additional money. It is the sum of that money and additional money that is needed.

Q. Okay. So that money -- the money that's already being spent is built into the cost estimates, is that fair?

MR. KO: Objection to the form.

A. Continuing a similar amount of money in the future is built into the cost estimates.

BY MS. HIBBERT:

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Q. The cost estimates aren't just for the additional money that it would take to continue with those programs?

A. Sorry, the cost estimates, repeat that question, please.

Q. Sure. The cost estimates aren't just for the additional money that it would take to continue implementing those programs.

A. Additional and continue seem to conflict in that sense. I both have the costs that would be necessary to continue, and I have the additional. It is the sum of the two.

MS. HIBBERT: Let's take that quick break.

MR. KO: Thanks.

THE VIDEOGRAPHER: The time is 5:15 p.m., and we're off the record.

(Whereupon, a recess was taken.)

THE VIDEOGRAPHER: The time is 5:25 p.m., and we're on the record.

BY MS. HIBBERT:

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Q. Dr. Liebman, we talked earlier about how your abatement plan and cost estimates, do they include the estimates for individuals who were addicted or are addicted to illicit opioids like heroin and fentanyl and car fentanyl and various analogs, do you recall that testimony?

A. Yes.

Q. Would it have been possible for you to separate out that population of people in performing your analysis and calculations in this case?

A. I wasn't asked to do that so I haven't thought heard about that question, but I think it would be complicated.

Q. Have you ever done a calculation like this before where you would have to separate out a certain population like this?

A. So, sorry, explain what like this means.

Q. Well, when you say that it would be complicated, what do you mean by that?

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A. I guess I was -- were you simply -- was your question simply could I make -- could we separate out MAT into people who are currently using heroin and people who are currently using prescription opioids?

Q. Let me put it this way. Would it be possible to separate out all of your cost components for every component any cost associated with individuals that use or abuse illicit opioids that have never used a prescription opioid in their life?

A. The reason it could be complicated is that there are market factors in the illegal drug market that determine how much heroin is supplied to a community that probably is dependent on, overall on -- I really haven't thought about this issue so I don't think I want to offer an opinion.

Q. Okay. If someone wanted to do that, take your abatement plan and estimation of cost and take out of it all of the estimates for costs associated with individuals that have never taken a prescription opioid in their life, would that

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be possible?

A. Someone could make an assumption of, I guess, on the treatment side of what fraction of people were in that category and simply break out that number into 80 percent and 20 percent or whatever it was.

Q. You didn't do that here in your report?

A. I was not asked to do that.

Q. If someone asked you or if someone wanted to down the line to take out any of the estimated costs that were specific to the cities of Cleveland and Akron, would that be possible?

A. Do you mean expenditures of city government or people living in those communities being served?

Q. The expenditures associated with those cities specifically?

A. I'm sorry, I don't think you answered that. I'm not supposed to be asking questions, but I don't think you answered. You didn't make me understand your question.

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So are you asking me which part of this program would be -- would I propose to be administered by the city governments and, therefore, dollars would have to flow through them to administer those programs?

Q. Let me try to make it more clear since you don't understand, and that's reasonable.

Would it be possible to separate out any of the estimated costs that are associated with residents that are in the City of Cleveland or the City of Akron? Start there.

A. One could do that, for example, by taking the fraction of the total county population that lives in those communities. Some of the rates might differ in the cities and the outlying areas, and one would have to think hard about whether one would make different assumptions in the different parts of the county.

Q. What rates are you thinking of?

A. Maybe the number of the percentage of families involved in the child

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welfare system where opioid abuse is an issue in that family, it could be that that rate was different in the city than in the rest of the county.

Q. Was there any data or any information that you looked for or wanted to see in forming your opinions and performing your calculations that you couldn't find or wasn't provided to you?

A. I think when everyone does analysis like this, one has something you're trying to estimate and you try to go find the best source of data and you -- in lots of categories, I look for one thing and I look for another and I find what the best source is that I can find out there. So I think the answer is definitely yes, but I'm not -- it's not going to be easy for me to give you a detailed list.

Q. Have you asked anyone, including the folks that you're working with from Compass, any other experts or counsel in this case, have you asked for any materials that haven't been provided to you?